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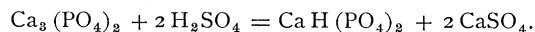
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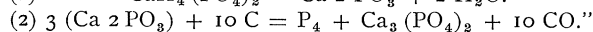
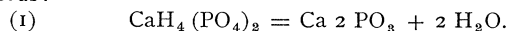
principles, presented in a manner far inferior to the best modern examples, and insufferably dull. Even in the matter of information it is not up with the times. We are told that "the two prevailing opinions with regard to the nature of heat are the *theory of emission* and the *theory of undulation*;" the latter of which, it is added, is now generally accepted, but so overburdened with inherited terms of indefinite meaning as to occasion much confusion of mind, and to necessitate the admission to the student seeking exactness, that all who study the subject are impressed with their vagueness and unsatisfactoriness. After this we could hardly be surprised to note that the atomic hypothesis is an invention of the "late Dr. Dalton," who derived some suggestion of it from the ancient philosophers, by which term, we presume, reference is made to the late Lucretius, Leukippos, and others.

The latter half of the book, however, is so much worse, from an educational point of view, that we are inclined, on the whole, to admire the astuteness which led to a change of base and the filling-in of the former half with less unwieldy material, though the proceeding is somewhat suggestive of the tricks of the medical practitioner of tradition, who, failing in the diagnosis and treatment of existing complaints, possessed the art and acuteness to get his patient into fits, in the management of which he considered himself to be an adept. As in most books on elementary chemistry, we find descriptive text, directions for experiment, and problems to be solved; but the scientific method — the careful and logical adjustment of experimental conditions to the end of securing conclusions as definite as possible — is lacking. We are told that the elements combine to form compounds, and the fact is illustrated by the burning of phosphorus in oxygen, and other similar experiments; but not a particle of evidence, beyond mere assertion, is adduced to show that the action is synthetical rather than metathetical or analytical. The union of two elements in more than one proportion is not proved by appeal to the evidence of the balance, to the value of which the author has paid tribute in connection with the elucidation of the principles of its mechanism; but, instead, we are treated to the following: "We have now to inform and demonstrate to the learner that more than one compound can be formed, in many cases, by the union of the same elements. This will at once be rendered easily intelligible to him if we make use of our former comparison. There are different words composed of the same letters: there are, for instance, two different words composed of the letters *t* and *o*, viz., 'to' and 'too'; the same with the letters *b* and *e*, viz., 'be' and 'bee'; and other examples will at once recur to the student. In like manner, for example, there are two compounds of carbon and oxygen: viz., carbon monoxide, the symbol for which is CO; and carbon dioxide, which, for the present, we will represent by the symbol COO. This latter compound, it will be seen from the symbol, contains double the quantity of oxygen the former contains." This is puerile; but the pendulum swings to the other extreme, and the student, not yet informed as to the laws of combining proportions, the qualities or constitution of acids, bases, or salts, is expected to extract an intelligent idea from descriptions like the following, which, if not taken bodily from "Gmelin's great work of reference," might easily have been so derived, so far as form of statement and assumption of previous knowledge are concerned: —

"The bones being freed from organic matter, and in form of ash, are treated with sufficient sulphuric acid to form an acid phosphate: —



The solution of the acid phosphate is poured off from the insoluble CaSO_4 ; the solution is evaporated to a sirupy consistence; it is then mixed with a sufficient amount of charcoal, evaporated to dryness, and afterward gradually heated to full redness in an appropriate vessel. Two-thirds of the phosphorus distils over, and is condensed by the water contained in the receiving-vessel. The operation may be regarded as consisting of two stages: 1st, the conversion of the acid phosphate; 2d, the setting-free of the phosphorus: —



These examples are sufficient to show the spirit of the book, which is lacking in those qualities of method which have lately begun to appear in elementary chemical literature, and give prom-

ise of the evolution of something more in accord with advanced ideas in matters of education. In our humble judgment, this volume is entirely unsuited to the needs of the modern classroom or laboratory.

A Companion to School Classics. By JAMES GOW. New York, Macmillan. 16°. \$1.75.

Chronological Tables. By ARTHUR C. JENNINGS. New York, Macmillan. 12°. \$1.25.

THE first of these books treats a variety of subjects that students of the classics need to know about, and which cannot be adequately dealt with in the ordinary commentaries. It is divided into five parts, treating respectively of classical texts, the public economy of the Greeks and Romans, the drama, and philosophy. Mythology and geography are not included, doubtless because there are works enough on these subjects already. The Homeric age also is left untouched, on the ground that it is sufficiently illustrated in Professor Jebb's work, and others devoted to that special theme.

The second and third divisions of the work, which deal with public affairs, are the longest, and give an excellent brief description of the Athenian, Spartan, and Roman constitutions, with accounts of the public assemblies and of the various officers of state and their duties. The military and naval establishments are also described, and there are chapters on finance, on chronology, and on weights and measures. In these parts of his work Mr. Gow has presented a vast amount of information in a small compass; yet it is so well arranged and so clearly stated, that, notwithstanding its condensation, it is read with ease and pleasure. Indeed, we do not know where to look for so good an account of Athenian and Roman public affairs, in a form at once clear, concise, and full enough for ordinary students, as Mr. Gow has here given us.

The other parts of the work are of a more scholastic character, especially the first, which gives a brief history of classical texts. First comes a history of the Greek and Latin alphabets; next a description of the mode of writing and of making books in ancient times, followed by a history of classical manuscripts in the middle ages and after the revival of learning; and then a full account of the means and methods of textual criticism. The chapters devoted to these subjects are necessarily somewhat dry; but the information they contain will be useful not only to young students, but to all persons interested in the history of literature. The accounts of the drama and philosophy are briefer than the other portions of the work, but are sufficient for the ordinary purposes of classical students.

From the analysis here given it will be apparent that Mr. Gow's work is different from the other helps to classical study that are now so abundant; and it contains so much that is excellent, that we hope to see it introduced into the schools of this country. Of course, in a work dealing with so many subjects, and necessarily touching many controverted points, it is difficult to secure unimpeachable accuracy; and we can well believe the author when he says that he has found the preparation of the work extremely difficult. Nevertheless, its accuracy, so far as we have been able to test it, is of a high order; while in style and arrangement it is much superior to most of the works with which it is naturally compared.

Mr. Jennings's work is a synchronistic arrangement of the chief events of ancient history, and will be a useful companion to all students of the ancient world. It is not confined to Greek and Roman affairs, though these necessarily occupy the foremost place, but gives also the dates of the leading events in Jewish, Egyptian, and Assyrian history, and of some specially important occurrences in India and China. The tables are arranged in six columns, dealing respectively with political history; Jewish church history; wars, popular movements, catastrophes; biography and topography; inventions, discoveries, science, art; laws, literature, drama, institutions. The chronology ranges from the received date of the foundation of Rome, 753 B.C., down to the Christian era. In regard to very many facts of ancient history, exactness of date, as the author remarks, is unattainable; and he has thought it best to adhere in the main to the schemes of chronology usually found in dictionaries of dates, and other educational works. The special excellence of the work lies, of course, in its parallel presentation of

events in many nations, and in many different departments of human activity; and in this respect it has eminent advantages over most other chronological works.

We should add that both the works here noticed are provided with elaborate indexes, which greatly enhance their usefulness.

Physical and Industrial Training of Criminals. By HAMILTON D. WEY. (Monographs of the Industrial Education Association, Vol. I. No. 3.) New York, Industr. Educ. Assoc.

AMONG the many innovations in penal science introduced at the New York State Reformatory, there is perhaps none with so great an interest to the scientist and the educator as the experiment of reaching the unresponsive intellects of refractory and stupid criminals through their muscles. This experiment, noticed in these columns some time ago, carried with it the proof of its success. It was due to the author of this pamphlet, Dr. H. D. Wey, physician to the reformatory at Elmira. In the present pamphlet Dr. Wey rehearses this experiment, and surrounds it with a valuable analysis of the criminal character, — the only sound basis of true and lasting reform. He here portrays the deviation of the psychophysical organism of the criminal from that of his more fortunate fellow-men, and deduces from it the sound conclusion that the only method of restoring the criminal to a worthy place in the community is to re-organize that fundamental re-action between an individual and his environment that makes crime tempting. For this purpose one must educate the criminal, and that not only in the usual sense of literary instruction, but with the additional meaning of re-forming the habits of his body and mind; and when, in especially dull and sluggish men, it was found that a direct appeal to the will and the intellect was unsatisfactory, the logical step was taken of treating the muscles, the physiological organs of the will: for modern physiology tells us that in muscular exercise we develop not only the muscle, but, more important, the nerve-cell that controls its action; we are building brain and power alike. Such a purely physical training brought the average marks of a dozen most unpromising men for purely intellectual studies from 46 per cent to 71 per cent. The effect is immediate, and, if the treatment is sufficiently prolonged, is lasting.

The second portion of the pamphlet is devoted to the industrial system at Elmira. Idleness is the source of a good share of the world's misery; and every moment of a prisoner's life ought to be systematically occupied. Moreover, the work should be made as interesting as possible, not assume the air of a task imposed as a process of torture. Add to this, that the industrial training must be such as to fit the liberated man to earn his livelihood, and at once (for it is immediately after liberation that the greatest danger exists), and it seems to follow as a necessary deduction that the reformatory workshop must approximate to the real hives of production in the surrounding world. In addition, the educational value of manual training is to be made a special point. This is what the reformatory at Elmira is attempting to do; and the success of the enterprise, after it is properly understood both by the men themselves and by the public, seems beyond question. This monograph, it is hoped, will be the means of extending the sound teachings and practices in vogue at the New York Reformatory.

Negro Myths from the Georgia Coast. By CHARLES C. JONES, Jun. Boston, Houghton, Mifflin, & Co. 12°.

THE title of this book is not quite correct, for the tales told in it are not myths, but fables. Some such stories had already been collected by other writers; but Mr. Jones has found in the swamp region of Georgia and the Carolinas a comparatively unknown field, in which he has gleaned much that is new. The stories are told in the *patois* of the negroes themselves; which seems to us a mistake, as they are not only harder to read, but less interesting, than they would be in correct English. Moreover, many of the linguistic peculiarities are mere mispronunciations, while others are contractions such as we all use in conversation, and only a few are real dialectical characteristics.

The characters in the fables are mostly animals, the rabbit being the favorite, while the wolf and the alligator are frequently introduced. The stories show not a little ingenuity and humor, and some of them are quite entertaining. One of the best is that about

the monkey who didn't know what trouble was, and who went to the Devil to find out. The Devil gave him a closed bag, and told him to go out into the midst of a large field near by, and then open the bag, and he would find an answer to his inquiry. The monkey obeyed, and when he had reached the middle of the field opened the bag, when out jumped a bull-dog. The monkey started and ran, and the dog ran after him until they reached a wood, when the monkey succeeded in climbing a tree, but not without the loss of his tail. The dog staid by the tree and watched till he was hungry, and had to go off in search of food. Then the monkey came down and went home to his wife, telling her that he had had enough of trouble. The moral is obvious: never search for trouble, but wait till it comes to you.

Besides the fables, a few other stories are given, the most important being those relating to the negro belief in spirits, fetiches, and charms. These show, what was already known from other sources, that the Southern negroes are hardly less superstitious in some respects than their African ancestors, and that a great deal will have to be done to raise them to the level of civilization.

Lessons in Geometry, for the Use of Beginners. By G. A. HILL, A.M. Boston, Ginn. 12°.

THIS admirable little book is a grammar-school geometry, and as such lies midway between the courses in geometrical drawing followed in some of our city schools, and a course in ordinary demonstrative geometry. It is intended to follow the study of arithmetic. The method followed is in great part that of question and answer. Each new idea is put in very simple language. Definitions are carefully explained, and in many cases illustrated by cuts. In short, every difficulty which the pupil is likely to meet with seems to have been anticipated. The few demonstrations that are given are all based on the method of equal triangles. The most important feature of the book is the large number of exercises. Of these, those which involve the metric system are separated from the others, and can be omitted if desired. A cheap case of drawing-instruments accompanies the book. The book is adapted to the needs of every grammar-school in the country, and could with advantage be used in all of them. For practical knowledge gained, few branches would better repay the time devoted to the study of this book. It is printed in the elegant style in which the publishers are accustomed to issue their works. G. W. SAWIN.

Trigonometry for Beginners. By Rev. J. B. LOCK, M.A. New York, Macmillan, 1886. 16°. 60 cents.

THIS little book is an abridgment of the 'Elementary Trigonometry' by the same author. Very little knowledge of geometry is assumed. Some points, such as the circular measure of an angle, the fact that the ratios depend only on the magnitude of the angle, and the explanation of tables, are much better put than it is customary to find them. The book also contains a very large number (about seven hundred and fifty) of exercises, which are much better chosen than those in the trigonometries in common use, those in formula-work being particularly good. These exercises, together with the low price of the book, make it especially valuable as a secondary treatise for teachers who are using another textbook. The book is too small for the amount it contains, and as a consequence its pages are much crowded.

Geometry in Space. By R. C. J. NIXON, M.A. Oxford, Clarendon Pr. 12°. (New York, Macmillan, 90 cents.)

THIS is a brief treatment of solid geometry, modelled on that of Euclid. A short introduction on perspective is prefixed, however, and some modern ideas are introduced, such as anharmonic ratio, similitude, inversion, and poles and polars, these subjects being very briefly treated. The number of exercises is also large. A chapter on the geometrical theory of perspective is appended. The book is well printed, but would be much improved if the type were larger.

NOTES AND NEWS.

THE third part of the annual report of the Geological Survey of Pennsylvania has just been issued. It treats of the operations in the anthracite-coal region, and is accompanied by an atlas, embracing the coal-region, and based upon the triangulation of the United